31 July 2016

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NEWS

Country to tap into rich blue carbon potential (Indonesia)

27 July 2016, Jakarta Post

The nation is set to take advantage of its blue carbon potential, estimated to be huge, as the country's seagrass and mangroves account for 17 percent of the world's blue carbon reserves. As an archipelagic country located along the equator at the heart of the Coral Triangle, Indonesia is blessed with rich coastal ecosystems. Its warm climate makes it a suitable habitat for mangroves and seagrass. According to Conservation International (CI) Indonesia, these coastal ecosystems could capture much more carbon than terrestrial ecosystems, such as rainforests, making it more valuable in mitigating the impact of climate change.

CI Indonesia is developing the blue carbon potential of the Kaimana regency in West Papua, focusing on the conservation of 50,000 hectares of its mangrove ecosystem. Seagrass meadows also have tremendous blue carbon potential. Although they only take up a small percentage of global coastal area (about less than 0.2 percent of the

world's oceans), they are responsible for more than 10 percent of all carbon buried annually in the sea. This high carbon storage suggests mangroves and seagrass meadows could play an important role in climate change mitigation. They could also be monetized through the carbon trading market.

While Indonesia is home to rich coastal ecosystems, its blue-carbon ecosystems are also among the world's most threatened. In the past 30 years, Indonesia lost 40 percent of its mangrove coverage. About 3 to 7 percent of ecosystems are disappearing every year, with the worst conditions found on the northern coast of Java. The main reasons are dredging, degradation of water quality, deforestation and aquaculture activities. With such high potential despite the rapid degradation, the Maritime Affairs and Fisheries Ministry is looking to develop the country's blue carbon.
more…….. http://www.seagrasswatch.org/news.html

Less fertilizer good news for the Great Barrier Reef (QLD, Australia)
26 July 2016, Science Codex

James Cook University researchers have shown a way to potentially halve the amount of fertiliser dairy farmers use while maintaining pasture yields, providing improved protection for the Great Barrier Reef. JCU's Dr Paul Nelson said nitrogen from fertiliser spread on fields can have significant environmental effects on creeks and coastal waters.

The team applied a relatively new nitrification inhibitor - a chemical that slows the conversion of nitrogen to easily lost forms - that allows more time for the fertiliser to be taken up by the roots of the plant for which it was intended. Just half the usual amount of fertiliser was needed to achieve the same amount of pasture growth in a one-year trial.

The researchers also found that most of the excess nitrogen from the paddock was lost via leaching through the soil. The loss in surface runoff was negligible. Dr Nelson said that although dairy pastures are a relatively minor land use in the tropics, the amounts of nitrogen-based fertiliser they use are large, so reductions in pollution could be significant.
more…….. http://www.seagrasswatch.org/news.html

Seagrass in Indonesia at risk from human activities (Indonesia)
23 July 2016, Jakarta Post

Seagrass meadows in the country are turning into muddy wastelands as they are under widespread threat from human activities and are often overlooked in conservation, putting the fisheries industry in peril. Loss of seagrass has been documented in places such as Lombok in West Nusa Tenggara, Manado in North Sulawesi, Wakatobi in Southeast Sulawesi and the Pari Islands, north of Jakarta, according to a group of Indonesian and UK scientists.

"Pollution is the biggest problem for seagrass in Indonesia," Swansea University marine ecologist Richard Unsworth told The Jakarta Post, in reference to the country's many polluted seas. The second biggest threat for seagrass is coastal development. In the Pari Islands, for instance, seagrass is being destroyed so that people can construct houses where the seagrass meadow use to be. The third problem is overfishing, which significantly causes imbalances in the marine ecosystem. All these problems are killing seagrass meadows across the archipelago.

Realizing that the nation's seagrass meadows are in peril, a group of seagrass experts led by researchers at Swansea University, Cardiff University and Hasanuddin University recently gathered in Makassar, South Sulawesi, to collect evidence of the current status of seagrass, survey risks and develop conservation solutions. It was the first time such evidence has ever been collated. The evidence highlights that action is urgently required to minimize damage to seagrass and to make them resilient to rapid and global environmental change. Conservation management strategies are required to address specific threats to seagrass, which then can be implemented across the archipelago. For example, seaweed farming can be conducted in deeper waters away from seagrass where water clarity is higher, increasing seaweed growth. Furthermore, coastal development needs to operate in a manner sensitive to the local habitat and illegal sand mining on important beaches needs to be policed.
more…….. http://www.seagrasswatch.org/news.html

Related article:
Seagrass Deterioration Threatens Indonesia's Fishing Future: Research (Jakarta Globe)
http://jakartaglobe.beritasatu.com/news/seagrass-deterioration-threatens-indonesias-fishing-future-research/

Science forum in Brisbane to discuss the way forward for Reef water quality research (QLD, Australia)
19 July 2016, My Sunshine Coast (press release)

A Queensland Government initiative of nearly $12 million is putting practical, science-based tools into the hands of producers at the frontline of the battle to save the Great Barrier Reef. Environment Minister Dr Steven Miles said the Reef Water Quality Science Program had produced a suite of science products that delivered valuable, knowledge-based, practical tools and information for landholders, advisors and government decision-makers. Dr Miles said

producers, policy makers and scientists would have an opportunity to discuss research findings and the way forward at a science forum in Brisbane on July 20.

More information on the science products which make up the Reef Water Quality Science Program, including the summary publication Reef Water Quality Science Program 2009-2015 – our research investment is available at www.qld.gov/FarmingInReefCatchments
more…….. http://www.seagrasswatch.org/news.html

Dorset volunteers join conservation campaign (United Kingdom)
14 July 2016, Dorset Echo

Volunteer crew members on MV Freedom are taking part in a scheme to monitor seagrass around the British coast. The crew of the boat, which helps disabled people to explore the Jurassic Coast, is joining the Community Seagrass Initiative (CSI)'s Sailing Into Science programme to carry out crucial monitoring work around water clarity.

Clarity of the water is essential to nurturing seagrass meadows as it affects the amount of light that they are able to get to help them grow. In areas where pollution is introduced into the water, this can make the surface murkier and limit the potential of seagrass to grow. The CSI provides all the training and equipment needed and the monitoring itself is very quick and easy so everyone can take part. All the information collected is vital for understanding more about the potential threats to seagrass and working to reduce them."

The Community Seagrass Initiative is spearheaded by the National Marine Aquarium in Plymouth and is being supported by a number of conservation organisations, including Weymouth Sea Life Adventure Park. It was made possible by a £475,000 grant from the Heritage Lottery Fund.
more…….. http://www.seagrasswatch.org/news.html

Dead seagrass, groups headed to DC (USA)
13 July 2016, The News-Press

Environmental groups are sending a contingency to Washington, D.C., this week in hopes the federal government will put pressure on the state to buy agriculture lands south of Lake Okeechobee for Everglades restoration projects. Under the Charlie Christ administration, the state was prepared to buy out all of U.S. Sugar and turn those lands into a storage and conveyance system that would take water flows from the lake and deliver them to the Everglades and Florida Bay, where the water naturally belongs.

Jennifer Hecker, with the Conservancy of Southwest Florida, collected dead seagrass from local beaches, along with a container of water filled at the Centennial Park boat ramp in downtown Fort Myers. Hecker said the scientists believe that the color of the water is so dark, that it is tricking the seagrasses into shedding their leaves. Hecker and others are meeting with Rep. Curt Clawson, R-Bonita Springs, and Congressman Patrick Murphy, D-Stuart, and other lawmakers in Washington. Their message: the federal government should work with the state to make sure agriculture lands south of Okeechobee are purchased, as was originally planned, and used to restore flows in the River of Grass. The original deal with U.S. Sugar was $1.8 billion for 107,000 acres and other assets.

Gov. Rick Scott and the South Florida Water Management District have said in recent years the agriculture lands are not needed, that buying the company would be a waste of taxpayer dollars. The sugar industry bankrolls the campaigns of many of Florida's most influential politicians, and some people and groups believe the state has only backed out of the purchase because U.S. Sugar no longer wants to sell its lands and assets.
more…….. http://www.seagrasswatch.org/news.html

Manatee deaths resume in Indian River (FL, USA)
13 July 2016, Orlando Sentinel

Manatee deaths linked to pollution have resumed in the algae-stricken Indian River Lagoon of Brevard County, according to state wildlife officials. Since the end of May, eight manatee carcasses have been recovered, bearing signs of trauma that has killed more than 150 of the marine mammals in the past four years.

The mortalities began in July 2012 when the Indian River, already ailing from pollution, was crippled with an outbreak of microscopic algae, turning waters strikingly brown or green and wiping out seagrass on which manatees forage. Martine de Wit, lead veterinarian at the Marine Mammal Pathobiology Laboratory of the Florida Fish and Wildlife Conservation Commission in St. Petersburg, said 166 manatees, including eight recovered in recent weeks, have been found with little or no sea grass in their stomachs. Instead, their digestive systems were filled with a large type of algae commonly known as seaweed.

The specific cause of death isn't known, De Wit said, but the manatees typically succumbed so suddenly that they drowned. Green and brown forms of algae invading the Indian River were subsiding gradually last year, and seagrass had begun to show signs of recovery. Microscopic algae had flared up again early this year, smothering

much of the Indian River in Brevard County. That outbreak was followed by an enormous fish kill in March that left canals and open waters of Indian River reeking. Charles Jacoby, a St. Johns River Water Management District scientist, said his agency has seen small declines during recent months in the intensity of algae infesting Mosquito Lagoon, Banana River and Indian River in north Brevard County. Jacoby said seagrass can still be found in the usual areas but has thinned significantly.
more…….. http://www.seagrasswatch.org/news.html

Related article:
Algae May Be to Blame for Manatees Deaths in Florida (The Science Explorer)
http://thescienceexplorer.com/nature/algae-may-be-blame-manatees-deaths-florida

Restoration resolution questions water flow rule (FL, USA)
13 July 2016, KeysNews.com

Monroe County and the village of Islamorada have each drafted resolutions that urge state and federal officials to expedite Everglades restoration efforts that will deliver more fresh water to Florida Bay, which suffered a massive seagrass die-off in 2015. The county proposal will go before its board later this month, while the village resolution was unanimously passed on June 30. One of the key components in the Islamorada resolution revolves around the South Florida Water Management District's Minimum Flows and Levels (MFL) rule as it relates to the bay. The resolution concludes that the MFLs are not sufficiently protective to prevent significant harm to the bay.

Since 2006, the district has been required to maintain at least a net discharge of 105,000 acre-feet of fresh water into the northeastern part of the bay over a 365-day period. This is to ensure that salinity levels do not rise above that of normal seawater and threaten seagrass. Past die-offs have fueled devastating algae blooms that feed on the nutrients released by decaying seagrass. The district has violated the MFL rule twice over the past 10 years. During the most recent violation, the flow dropped to 78,000 acre-feet in August 2015 — the lowest level since 1996. A massive die-off occurred about the same time, wiping out at least 22,000 acres of seagrass. Some estimates place the damage closer to 50,000 acres.

Everglades Foundation biologist Stephen Davis says the district should increase its minimum flow requirements if one violation can create such havoc. He says a greater buffer zone needs to be established with the 105,000 acre-feet of water mark to act as a sort of alarm system. However, the district is cautious about raising the water level too high as it can cause flooding in the large agricultural area to the east of Everglades National Park. Davis believes the main factor for the district's violations and subsequent die-offs lie not with periods of drought but in the disconnected water supply. And, according to Davis, it won't be long before the decaying seagrass spawns a massive algae bloom. Based on previous large-scale die-offs, he believes such a bloom could strike the bay in 2018 or sooner.
more…….. http://www.seagrasswatch.org/news.html

How Growing Sea Plants Can Help Slow Ocean Acidification (OR, USA)
12 July 2016, Yale Environment 360

Researchers are finding that kelp, eelgrass, and other vegetation can effectively absorb CO2 and reduce acidity in the ocean. Growing these plants in local waters, scientists say, could help mitigate the damaging impacts of acidification on marine life. Oregon's picturesque Netarts Bay has long been known for its oysters. But Netarts, like the whole west coast of North America, is getting more acidic. And the oysters don't like it.

Last summer, Oregon State University marine ecologist George Waldbusser and his team boated around Netarts Bay planting baby oysters to see how they would fare. The only ones that thrived were those protected by beds of eelgrass, which seemed to swallow up enough carbon dioxide during the peak of each day to give the oysters a break from acid and a window of opportunity for growth. He and other experts on the West Coast Ocean Acidification and Hypoxia Science Panel, which released its first report this April, recommended that scientists and managers push forward such strategies to suck CO2 out of the water.

Oysters would not be the only creatures to benefit. Derek Manzello manages a long-term ocean acidification monitoring site at Cheeca Rocks in the Florida Keys, as part of the National Oceanic and Atmospheric Administration's (NOAA) National Coral Reef Monitoring Program. That particular patch of coral is one of the only reefs in the Florida Keys that is still growing; in other reefs, most corals have died from disease and bleaching since the early 1980s. There are several possible explanations for Cheeca Rocks' resistance to these problematic conditions, but one possible explanation is that they are living in a low-acidity refuge created by nearby seagrass beds. A study from the tropical Indo-Pacific reported seagrass meadows there have the potential to increase aragonite saturation by up to 2.9 units, and the pH by 0.38 (http://bit.ly/2aPNduC). That should give corals about an 18 percent boost in growth, making seagrass a potential tool for marine park managers, the authors write. The potential is huge. Yet seagrass ecosystems are being wiped out, thanks to everything from pandemic disease to water pollution and coastal construction projects. Efforts to restore or farm such plants could have a host of benefits, including soaking up atmospheric carbon.
more…….. http://www.seagrasswatch.org/news.html

Seagrass species in danger (QLD, Australia)

10 July 2016, Gold Coast Bulletin

Climate change has been identified as the biggest threat to the Gold Coast's seagrass ecosystems, followed by coastal development. These findings have been made in a scientific study into Gold Coast waterways released by the Gold Coast Waterways Authority. Chief executive Hal Morris said the report provided valuable information about the seven seagrass species that grew in local waterways. It also identified the stressors and activities which might have an impact on them and their ability to respond to change.

The study was led by Professor Rod Connolly, of Griffith University, and a panel of representatives from two other Queensland universities, an international university and Healthy Waterways. Mr Morris said a further study to review seagrass nourishment and mitigation projects was being carried out to better understand how to maintain and regenerate seagrass in the city's waterways.

more…….. http://www.seagrasswatch.org/news.html

Editorial: IUCN proposed recommendation will add to international pressure to stop Henoko base (Japan)

05 July 2016, Ryukyushimpo

The issue of alien species invasion feared to occur due to soil being brought in from other parts of Japan as part of the new Henoko base construction will be discussed at the General Assembly of the International Union for Conservation of Nature (IUCN) in September. Having received a proposal from the Nature Conservation Society of Japan and other organizations, the IUCN General Assembly will vote on a proposed recommendation to the Japanese government.

Six Japanese environmental conservation organizations have been criticizing the plan to relocate U.S. Marine Corps Air Station Futenma to Henoko, calling for the conservation of the dugong, sea turtle, coral, and other rare life forms, as well as the natural environment. The IUCN made a recommendation to the Japanese government that the dugong be protected three times, in 2000, 2004, and 2008, but the Japanese government turned its back on international opinion regarding nature conservation and is moving forward aggressively with the Henoko base construction.

2,100 cubic meters of soil is planned to be used to fill in the sea in the Henoko land reclamation. Reclamation of sea areas alone is destructive to marine ecosystems, and the additional issue of the impact of alien species mixed into the soil brought in from other parts of the country is also garnering attention. The reclamation plan involves shipping soil to Okinawa from seven locations and six prefectures around the country. In November of last year, an ordinance that restricts bringing in soil containing alien species came into effect, but there are doubts as to its effectiveness.

more…….. http://www.seagrasswatch.org/news.html

Drop in turtle numbers on Great Barrier Reef a concern (QLD, Australia)

05 July 2016, by Michael Brisenden, ABC Online

There are concerns for the wider health of the Great Barrier Reef, with reports that turtle numbers are dropping. The Cairns Turtle Rehabilitation Centre is looking for new larger premises to cope with the increasing number of turtles brought to them suffering injuries from fishing nets and boat strikes. The centre has nursed injured turtles back to health for the past 16 years. These days though a growing number are being brought to them on the brink of starvation.

Nance Haxton interviewed marine biologist Jennie Gilbert, co-founder and director of the Cairns Turtle Rehabilitation Centre. Jennie is surrounded by tanks of water like mini above ground swimming pools, each with an injured turtle inside recuperating from horrendous injuries. They released one turtle back to the wild recently, which took three and a half years of daily care to recover.

Jennie has a team of hundreds of volunteers, who help her care for the injured turtles and feed them squid and prawns. The food bill alone for the centre is more than $85,000 a year. While there is plenty of support in sponsorship from the local community, Jennie Gilbert is concerned that the number of turtles in the wild appears to be decreasing, especially up in the north, and more turtles are being brought in for help. Volunteer Nance Haxton is concerned that the seabeds on which the turtles rely for food have not fully recovered from a series of cyclones. That combined with boat strikes and entanglements in abandoned fishing nets, means the turtle rehabilitation centre is constantly under pressure.

more…….. http://www.seagrasswatch.org/news.html

Seagrass die off due to hyper salinity (FL, USA)

01 July 2016, Florida Keys Weekly

It started last summer during the drought and was only exacerbated by the continued blockage of freshwater flowing southward through the Everglades. A large section of seagrass (between 30,000 and 50,0000 acres affected) has died off in the Florida Bay, and things could be getting worse.

The hypersalinity in the Florida Bay is a result of fresh water not being able to flow south through the Everglades. But the problem actually originates further north. The draining of the Everglades started back to the 1940s and has continued, the only change being Floridians' regained appreciation for our unique ecosystem. The result has been what experts are calling a "near catastrophic" seagrass die off, with the Rankin basin being the epicenter. Since the passing of the Comprehensive Everglades Restoration Plan of 2000, which allocated more than $8 billion to project restoring the Everglades, less than a third of the 68 scheduled projects have been completed, according to Florida Bay Forever.

The Army Corps of Engineers have finished construction on one of five bridges on the Tamiami trail designed to increase the flow of freshwater, and say the second bridge will be completed in three years. There are things we can be doing right now to help the problem, however, says Bill Horn, former assistant secretary of the federal Fish and Wildlife (Department of Interior), and board member of Bonefish and Tarpon Trust. He said if the government is willing to relax the phosphorus standards, water flow from Lake Okeechobee could increase, thus helping salinity levels in the Everglades and also the Keys backcountry. Water in Lake Okeechobee is loaded with phosphorus, causing the levels to be roughly 100 parts per billion. To be able to move that water south, it needs to be brought down to 10 parts per billion. With that being said, if the State and Federal government agreed to lower the standard, knowing it might have some adverse effects on Conservation area 1, they could get some water down there to avoid the looming catastrophe.

more…….. http://www.seagrasswatch.org/news.html

Seagrass meadows to be saved around Scottish coasts (United Kingdom)

01 July 2016, Scotsman

Seagrass may be the less glamorous cousin of the coral reef but major work is now underway in Scotland to document and preserve this life-giving force of the ocean. Project Seagrass is currently extending its research programme to monitor the health of Scotland's vast seagrass meadows which are chiefly found on the west coast. The meadows are seen as key to sustaining the lives of species such as seahorses as well as young fish, such as Atlantic cod, starting out their lives in shallow waters.

Because it is not as colourful as coral reef, seagrass tends to be missed out of the conservation agenda. Dr Richard Lilley of Project Seagrass is hoping to change all that. The UK is a bit behind the times in knowing where the seagrass occur. One of the reasons Project Seagrass are moving up in to Scotland is because they know there is a lot of seagrass on the west coast, but don't know exactly how much. Research by Dr Lilley's colleague Richard Unsworth, of Swansea University, has found some 30,000 km2 of seagrass - known as Zostera marina - has disappeared over the past two decades, about 18% of the global area.

Scottish Seagrass, now set up by Dr Lilley, aims to mobilise a team of volunteer 'seagrass spotters' who can photograph seagrass meadows on their smartphone before sending the pics for identification using a specially built map. Using the GPS tag on the image, it is hoped researchers can build up an accurate map of where Scotland's seagrass meadows lie. Dr Lilley said he hoped he could create a new movement of "citizen science" by boosting public interest in seagrass and its important role in marine biodiversity.

more…….. http://www.seagrasswatch.org/news.html

Dead dugong raises concerns over fishing practices in Great Barrier Reef (QLD, Australia)

01 July 2016, The Guardian

A dead dugong, with injuries researchers say are consistent with entanglement in a fishing net or line, has been found near Townsville, raising concerns about lack of oversight over fishing practices in the Great Barrier Reef Marine Park. Found on Wednesday last week near Saunders beach, just north of Townsville, the dugong had scratches on its back and belly, and a deep laceration around its tail.

Isabel Beasley from James Cook University, who discovered the dead animal, told Guardian Australia the injuries were consistent with the dugong becoming entangled and drowning. She said it would be impossible to say what killed the animal without a necropsy. Beasley said the carcass had no signs of decay when she found it, and all its organs appeared intact. Inspection of the animal's lungs would have revealed if it had drowned.

A spokeswoman for the Queensland Department of Environment and Heritage Protection denied the injuries were consistent with entanglement and said no necropsy was performed due to "the advanced stage of decay".

more…….. http://www.seagrasswatch.org/news.html

Protecting marine coastal habitats cost-effectively

02 June 2016, Decision Point Online

Marine coastal habitats, such as seagrass meadows, provide valuable ecosystem services including food provision, carbon sequestration, and coastal protection. But coastal areas concentrate many human activities, both land-based (eg, coastal development) and ocean-based (eg, fishing). Therefore, conserving coastal habitats requires actions that abate multiple threats.

Environmental agencies charged with conserving coastal habitats must decide which threats to act on and where to take actions to abate those threats within their region. To achieve the greatest benefits for conservation, agencies should take the actions that are predicted to conserve the desired amount of habitat for the least cost. A first step towards that direction is to categorise threats as 'stoppable' (eg, fishing) or 'unstoppable' (eg, climate change) based on how easily a threat can be abated within a particular time period (eg, 20 years). This will enable environmental agencies to realistically prioritise actions for conservation under a specific budget or conservation target (eg, protecting 30% of the habitat distribution).

Our study demonstrated this approach for seagrass meadows. It selected the most cost-effective actions to abate stoppable threats (trawling and anchoring), while avoiding areas affected by threats that are more difficult to manage, such as coastal development. The relative improvement in cost achieved by using the proposed approach was examined by comparing with other common prioritisation criteria that do not consider cost, including choosing sites based on threat level or habitat cover alone. The establishment of anti-trawling reefs (in the study region in the Mediterranean) was found to be the most cost-effective action to achieve the European Union conservation target for the protection of seagrass (*Posidonia oceanica*) meadows.

more…….. http://www.seagrasswatch.org/news.html

CONFERENCES

The 12th International Seagrass Biology Workshop (ISBW12) (Wales, 17-23 October 2016)

Theme: Declining seagrasses in a changing world.

The International Seagrass Biology Workshop (ISBW) is the only international meeting specifically tailored to seagrass scientists, professionals and students. The International Seagrass Biology Workshop (ISBW) provides a good opportunity for the scientists working on various aspects of seagrass ecosystems to come together and discuss their latest findings. The ISBW12 will be held from 17-23 October 2016 at Nant Gwytheyrn, Gwynedd, Wales, organized by Project Seagrass and the Seagrass Ecosystems Research Group. The conference email address is ISBW2016@projectseagrass.org.

We as scientists know the devastating effects that humanity is having on our worlds seagrass meadows. Although much work is needed to keep documenting, understanding and highlighting the problems facing seagrass we as a research community need to also provide a voice of optimism about how we can make changes to ensure survival of these precious ecosystems. We must go beyond science, and use it to inform policy and management, and ultimately to catalyze change. We know that there are many examples of this, from stakeholder led management and successful restoration to improvements in water quality and the management of boating activities. We encourage participants to contribute stories of seagrass conservation success in order to strengthen this theme. We also encourage submission of research stories that aim to provide evidence to make future successes.

Let's make ISBW12 a conference that celebrates seagrasses and has a spirit of #oceanoptimism

The workshop therefore has 4 key themes that will form the structure of the sessions held throughout the week. These are:

- Resilience and a changing environment
- Ecosystem services
- Restoration and management
- Raising the profile of seagrass meadows

for more information, visit http://isbw12.org/

SEAGRASS-WATCH on YouTube

Seagrass: Pastures of the sea *http://www.youtube.com/watch?v=66Y5vgswj20* or *http://www.seagrasswatch.org/seagrass.html*

Presentation on what seagrasses are and why they are important (over 42,158 views to date)

…seagrass matters blog

World Seagrass Association blog http://wsa.seagrassonline.org/blog/

Keep up to date on what's happening around the world from the WSA with regular updates from WSA President Dr Richard Unsworth and *notes from the field* by Dr Siti Yaakub.

FROM HQ

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Seagrass-Watch E- Bulletin is compiled by Len McKenzie & Rudi Yoshida.